

REMARKS

This Amendment, filed in reply to the Office Action dated May 15, 2007, is believed to be fully responsive to each point of rejection raised therein. Accordingly, favorable reconsideration on the merits is respectfully requested.

Claims 1 and 3-5 are all the claims pending in the application.

I. Amendments to the specification and claim 1

The specification and claim 1 are amended to correct typographical errors. Specifically, in the amended expressions, the exponent of 3 is amended to -3.

Applicant submits that the amendments are fully supported in the specification. For example, in the paragraph bridging pages 12-13, an example of θ_t , θ_r and L_c is given. When $L_c = 40 \times 10^{-3}$ and $\theta_t = 30^\circ$, θ_r is greater than 30° and smaller than 47.5. Such numerical values fit in the amended expression $\theta_t < \theta_r < (700 \times 10^{-3} / L_c + \theta_t)$. Such example of θ_t , θ_r and L_c indicates that the exponent of 3 in the expressions before the amendments is clearly a typographical error.

In view of the foregoing, no additional search is required by entering the amendments. Accordingly, Applicant respectfully requests that the Examiner enter the Amendments.

II. Claim Rejections under 35 U.S.C. § 103

The Examiner has rejected claims 1 and 3-4 under 35 U.S.C. § 103(a) as allegedly being unpatentable over Arai et al. (U.S. Patent No. 6,873,081, hereinafter "Arai") in view of Nishikawa et al. (U.S. Patent No. 6,252,323, hereinafter "Nishikawa") and Daikoku et al. (JPA No. 2002-136003, hereinafter "Daikoku").

With regard to independent claim 1, the combination of Arai, Nishikawa and Daikoku does not teach or suggest each feature of the claim. For example, claim 1 recites said stator iron

core divided into plural blocks in the axial direction, and shifted by a second stage skew angle θ_s to decrease a second frequency component of said cogging torque in a circumferential direction of said stator iron core.

The Examiner alleges that Daikoku teaches in Fig. 1 that a stator core divided into plural blocks in the axial direction and shifted by a second stage skew angle θ_s . Applicant respectfully disagrees.

In Fig. 1 of Daikoku, even though the blocks 12d, 13d and 14d have different sizes, it appears that the center lines in the axial direction of blocks 12d, 13d and 14d coincide. Therefore, the blocks 12d, 13d and 14d are not shifted in the axial direction by an angle.

Claim 1 further recites that:

when the axial length of said stator iron core is L_c (m), and a theoretical angle of said first stage skew angle $\theta_r(^{\circ})$ is an electrical angle $\theta_t(^{\circ})$, the following expression is satisfied,

$$\theta_t = (360^{\circ}/\text{least common multiple of the number of stator magnetic poles and the number of rotor magnetic poles})/2 \quad \dots (1)$$

$$\theta_t < \theta_r < (700 \times 10^{-3}/L_c + \theta_t) \quad \dots (2).$$

The Examiner alleges that Arai teaches the above recited features. Applicant respectfully disagrees.

The Examiner correctly concedes that Arai does not teach the rotor having two stages or the stator iron core being divided into blocks. Since Arai does not teach the rotor having two stages, Arai could not possibly teach or suggest a stage skew angle between the lower stage permanent magnet and the upper stage permanent magnet of a rotor. For the same reason, Arai could not possibly teach or suggest a first stage skew angle that satisfies equations (1) and (2), described in claim 1.

In view of the foregoing reasons, claim 1 should be patentable. Claims 3-4 should be patentable at least because of their dependency from claim 1.

The Examiner has rejected claim 5 under 35 U.S.C. § 103(a) as being unpatentable over Arai, Nishikawa and Daikoku in view of Prymak (U.S. Patent No. 4,616,151, hereinafter "Prymak").

Claim 5 should be patentable at least because of its dependency from claim 1, and because Prymak does not remedy the deficiencies of Arai, Nishikawa and Daikoku.

III. Conclusion

In view of the above, reconsideration and allowance of this application are now believed to be in order, and such actions are hereby solicited. If any points remain in issue which the Examiner feels may be best resolved through a personal or telephone interview, the Examiner is kindly requested to contact the undersigned at the telephone number listed below.

The USPTO is directed and authorized to charge all required fees, except for the Issue Fee and the Publication Fee, to Deposit Account No. 19-4880. Please also credit any overpayments to said Deposit Account.

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Respectfully submitted,

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